

ABSTRACT OF THE DISCLOSURE

5 A distributed control system architecture (HSE) provides an open,
interoperable solution optimized for integration of distributed
control systems and other control devices in a high performance
backbone, provides an open, interoperable solution that provides
system time synchronization suitable for distributed control
10 applications operable over a high performance backbone, and
provides an open, interoperable solution that provides a fault
tolerant high performance backbone as well as fault tolerant
devices that are connected to the backbone. The distributed
control system architecture comprises a High speed Ethernet Field
Device Access (HSE FDA) Agent, which maps services of a
15 distributed control system, e.g., a fieldbus System, to and from
a standard, commercial off-the-shelf (COTS) Ethernet/Internet
component. The distributed control system architecture also
comprises a High speed Ethernet System Management Kernel (HSE
SMK) that operates to keep a local time, and keeps the difference
20 between the local time and a system time provided by a time
server within a value specified by the time sync class. The local
time is used to time stamp events so that event messages from
devices may be correlated across the system. The distributed
control system architecture further comprises a High speed
25 Ethernet Local Area Network Redundancy Entity (HSE LRE) that
provides redundancy transparent to the applications running on
the system. The HSE LRE of each device periodically transmits a
diagnostic message representing its view of the network to the
other Devices on the system. Each device uses the diagnostic
30 messages to maintain a Network Status Table (NST), which is used
for fault detection and selection from a redundant pair of
resources.

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